

The invention having been described, I claim,

1 1. A catheter device arranged to empower a plurality of functions with a single
2 insertion operation, the catheter comprising:

3 a) a urethral-type catheter having an insertion end and an access end and a connecting
4 tube;

5 b) a pressure sensor imbedded into said insertion end;

6 c) a temperature sensor imbedded into the wall of said tube, near said insertion end
7 and arranged to produce an electric signal with characteristics determined by temperature
8 sensed;

9 d) a light emitter ~~means~~ ^{and} imbedded into said wall arranged to project light outward
10 from the outside surface of said tube in response to electric energy provided thereto;

11 e) a color discriminating light sensitive detector ~~means~~ molded into the wall of said
12 tube and arranged to produce an electric signal with characteristics determined by the
13 characteristics of light energy received from the urethral lining outside said catheter;

14 f) an inflatable balloon intrinsic to said catheter tube wall, near said insertion end,
15 comprising a peripheral chamber in said tube wall;

16 g) a plurality of conductors imbedded in said catheter wall, at least one connected to
17 each said ^{light} emitter, said ^{sensitive} light detector, said temperature sensor, and said pressure sensor, each
18 terminating in an at least one conductor connector near said access end; and

19 h) a fluid conductor tube imbedded in said catheter wall, fluidly connected to said
20 peripheral chamber and opening as a tubular connector extending from said catheter near said
21 access end;

22 whereby said light detector, when in use adjacent mucosa, receives light energy
23 produced by said light source as conditioned by said mucosa and whereby said catheter
24 provides a terminal end for ^{association with} ~~associated~~ external signal conditioner, control, and indicator
25 ~~output~~ means.

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1 4. The catheter of claim 1 wherein said balloon is situated along said catheter tube
2 between said insertion end and said temperature sensor.

1 5. The catheter of claim 1 wherein said balloon is situated along said catheter tube
2 between said insertion end and said light ^{emitter} ~~emitting~~ and light sensitive detector ~~means~~.

1 6. The catheter of claim 1 wherein said light ^{emitter} ~~emitting means~~ and said light detector
2 are covered by a thin membrane that provides the outer surface of said catheter.

1 7. The catheter of claim 1 wherein said peripheral chamber is ^{at least in part,} provided by a tubular
2 membrane secured to the external surface of said catheter.

1 8. A modified Foley catheter comprising intrinsic pressure sensor means, temperature
2 sensor means, and oximeter means imbedded in the material forming the wall of the tubular
3 extension and provided with at least one electrical connector at the access end, said
4 connector providing access to conductors imbedded in the tube wall to transmit excitation
5 energy and signal communication between said connector and external control and signal
6 conditioning means to provide readout information defining temperature, pressure, blood
7 oxygen levels and pulse rate for a patient fitted with the catheter.